I Claim:

1. A method of performing single bit error corrected M-bit words that have been scrambled using a self synchronizing scrambler, the method comprising the steps of:

a) calculating an N-bit CRC every K words of a block of J words using a generator polynomial, where J is a non-zero integer multiple of K;

b) forming an M-bit word from the calculated N-bit CRCs, where M is a non-zero integer multiple of N, and appending this word to the block of J words to form a block of J+1 words for transmission;

c) calculating, responsive to receiving a block of J+1 words, another N-bit CRC every K words of the first J words of the received block of J+1 words and using, from the appended word, the N-bit CRC corresponding to the K words in each calculation; and

d) correcting, responsive to one of the another N-bit CRCs, computed at the receiver, having a non-zero value, an errored bit in the received block of J+1 words, the errored bit being indicated by an entry in a table indexed according to the non-zero value.

2. The method as defined in claim 1 wherein the M-bit words are 64b/66b encoded words (M=64 bits).

3. The method as defined in claim 2 wherein the N-bit CRC is a 16bit CRC.

4. The method as defined in claim 3 wherein K=2 and J=8.

5. The method as defined in claim 1 wherein the generator polynomial is $x^{16}+x^{12}+x^5+1$.

6. An error control block receiver (ECB_Rx) for receiving and performing single bit error corrected M-bit words that have been scrambled using a self synchronizing scrambler comprising:

synchronizing means to synchronize the error control block;

a buffer to store the M-bit words in a tabular buffer;

CRC 16 computation means to calculate a syndrome; and

a syndrome table, the calculated syndrome being compared with the syndrome table to detect a single bit error.

7. The ECB_Rx as defined in claim 6 wherein the M-bit words are 64b/66b encoded words.

8. The ECB_Rx as defined in claim 7 wherein the tabular buffer is a 9x8 byte buffer.

9. An error control block transmitter (ECB_Tx) for use in a single bit error corrected M-bit encoded words, the ECB_Tx comprising computation means to calculate CRC 16 of code words;

a buffer to store the code words in a tabular buffer; and

transmitting means to selectively transmit the code words.

10. The ECB_Tx as defined in claim 9 wherein the M-bit encoded words are 64b/66b encoded words.

11. The ECB_Tx as defined in claim 10 wherein the tabular buffer is a 9x8 byte buffer.

12. The ECB_Tx as defined in claim 9 wherein the computation means uses the generator polynomial $x^{16}+x^{12}+x^5+1$.

13. The ECB_Rx as defined in claim 6 wherein the syndrome table is generated to identify duplicate errors in the M-bit words employing an N-bit CRC calculation.